THREE NEW SPECIES OF SPONGES FROM THE COLOMBIAN CARIBBEAN

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ABSTRACT

Chelonaplysilla betinensis new species, *Xestospongia caycedoi* new species and *Lissodendoryx colombiensis* new species, are described from the coral reef environments of the Colombian Caribbean. The descriptions are accompanied by drawings of the mineral skeletons and in situ submarine color photographs.

With the recent publication of monographs of several orders of Caribbean Demospongiae (Van Soest, 1978; 1980; 1984) it became possible to define the systematic status of many unidentified but common species, collected during the inventory of the sponges of the Colombian Caribbean. First results are found in Zea and Rützler (1983), Zea (1983), Wintermann-Kilian and Kilian (1983; in press). The exchange of material among us has revealed the existence of quite a few common and some less common forms that are as yet undescribed. The purpose of the present paper is to describe three of the common undescribed species.

MATERIAL AND METHODS

The area studied comprises the Atlantic coast of Colombia in the southern Caribbean and the Isla de Providencia (Old Providence), a Colombian insular territory in the western Caribbean. Details and maps of each studied zone are given in Zea (1983), or will be published in the near future (Zea, in preparation). Sponges were mainly collected by one of us, Zea, using skin and SCUBA equipment. Underwater photographs were taken with a Nikonos IVa camera and an Ikelite 150 submarine strobe. Fixing, preserving and laboratory methodology followed Rützler (1978). Thirty to 50 spicules of each category in each specimen (or a representative specimen of each region) were measured to give length and width (when relevant) and their ranges and means.

Material is deposited in the following institutions: ICN-MHN(Po) = Instituto de Ciencias Naturales–Museo de Historia Natural–Porifera collection, Univ. Nacional de Colombia, Ap. Aereo 74-95, Bogotá D.E., Colombia. MM-POR = Museo del Mar–Porifera collection, Univ. Jorge Tadeo Lozano, Calle 23≠ 4-47, Bogotá D.E., Colombia. INV-POR = Instituto de Investigaciones Marinas de Punta de Betín–INVEMAR–Porifera collection, Ap. Aereo 10-16, Santa Marta (Magd.), Colombia. USNM = (United States) National Museum of Natural History, Smithsonian Institution, Washington, D.C., 20560. ZMA POR. = Zoölogisch Museum Amsterdam–Porifera collection, P.O. Box 20125, 1000 HC Amsterdam, the Netherlands.

Systematic arrangement follows Van Soest (1981); terminology is derived from Wiedenmayer (1977). Color NCG notation is from Naturalist's Color Guide of the American Museum of Natural History (Smithe, 1975).

SYSTEMATIC DESCRIPTIONS

Order DENDROCERATIDA Minchin, 1900

Family Aplysillidae Vosmaer, 1883

Genus *Chelonaplysilla* De Laubenfels, 1948

Chelonaplysilla betinensis new species
Figures 1 and 2A–B

Holotype—ICN-MHN(Po) 0084: preserved fragments. Bahía de Santa Marta, Punta de Betín, Santa Marta region, on dead parts of coral, coral formation, 12 m depth, 9-XII-1982, coll. SZ.

Paratypes.—INV-POR 0219. Same locality as the holotype, on dead parts of coral *Montastrea cavernosa*, end of coral formation, 20 m depth, 28-IV-1982, coll. SZ.

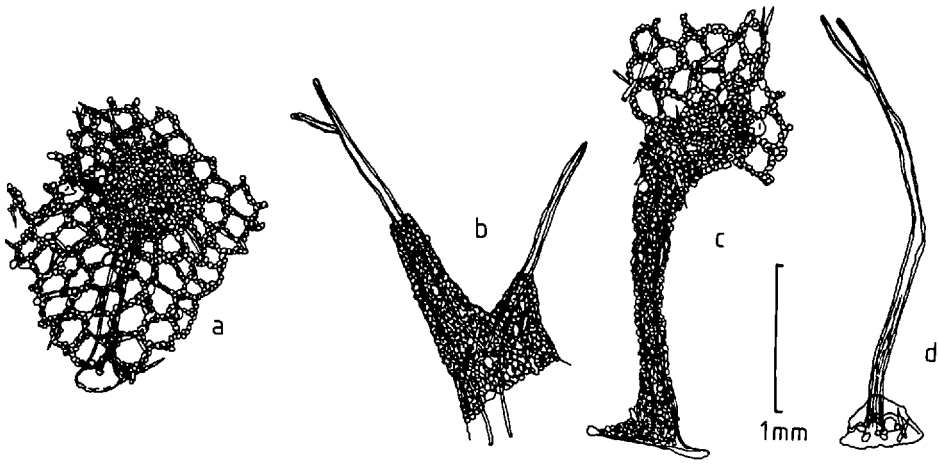

Figure 1. *Chelonaplysilla betinensis* new species, a: ectosomal reticulation of sand grains and spicule fragments, showing a dense accumulation in a conule, and a subjacent fiber, b: ramified fiber protruding from the conules, c: fiber heavily covered by debris; the apical concentration forms the conule, d: clean fiber ramified near the end.

ZMA POR. 5125. Fragment of the same specimen as INV-POR 0219.

USNM 32411. Same locality as the holotype, on dead parts of coral, end of coral formation, 20 m depth, 8-VII-1983, coll. SZ.

Type Locality.—Bahía de Santa Marta, Departamento de Magdalena, Colombian Caribbean (11°15'N, 74°13'W).

Diagnosis.—Greyish-green incrustations, up to 2.5 mm thick, up to 30 cm in diameter. Surface with blunt pale conules up to 2 mm high, 1–2 mm apart. Oscules 2–3 mm in diameter, 1–21 mm apart with slightly elevated transparent collars. Consistency soft, easily damaged. Ectosome with detachable papyraceous dermis reinforced by regular reticulation of sand grains and spicule fragments, forming meshes 40–240 μm in diameter. Skeleton formed by erect, smooth, pithed spongin fibres rising from basal plate. Fibres 1.3–6.2 mm long, 90–120 μm in diameter at base, tapering towards end, with pith occupying 57–89% of diameter; predominantly solitary, sometimes ramified one or two times near apex, frequently heavily covered by debris from its basal or medial portion to end at conules.

Description.—SHAPE. Thinly incrusting, up to 2.5 mm in thickness. Individuals spread over dead parts of corals, reaching dimensions of 30 cm in diameter. Surface with lightly colored reticulation visible over underlying darker tissue; conulose, with blunt conules up to 2 mm high, 1–5 mm apart, visible to naked eye as pale spots. Few choanosomal fibers protrude up to 3 mm over conules. Oscules scattered over whole surface, 2–3 mm in diameter, 1–21 mm apart, even, with slightly elevated transparent collar, not covered by dermal reticulation.

COLOR. General aspect greyish-green. At enlargement, dermal color can be differentiated due to reticulation of sand grains as light greyish-green (NCG 44—Smoked Gray), and flesh darker (43—Greyish Olive). In spirit, color is yellowish-green (52—Olive Yellow).

CONSISTENCY. Soft, easily damaged. Dermis detachable, slightly papyraceous.

ECTOSOME. Organic detachable dermis reinforced by reticulation of sand grains and spicules with 40–80-μm-wide tracts of debris forming regular rounded meshes 40–240 μm in diameter. Meshes with thin organic membrane containing fields of

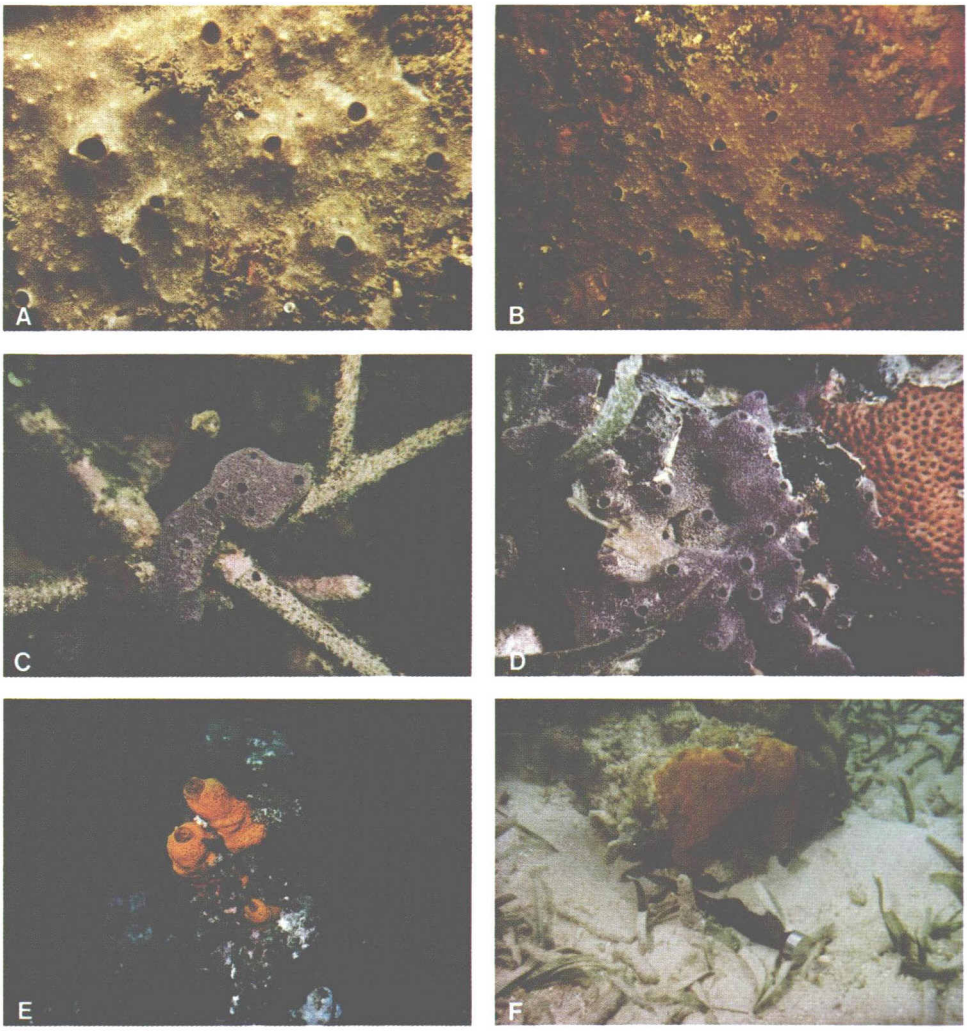

Figure 2. A and B. *Chelonaplysilla betinensis* new species, close up and macro view respectively, Bahía de Santa Marta, Punta de Betín, growing on dead corals, coral formation, 20 m depth (horizontal fields 16.4 cm for 1, and 7.2 cm for 2). C and D. *Xestospongia caycedoi* new species, close up views, Islas de San Bernardo; C: holotype ICN-MHN(Po) 0085, Isla Ceycén, a repent branch growing on dead *Acropora cervicornis,* patch reef, 4 m depth (buff sponge is a juvenile of *Aplysina fulva* (Pallas), horizontal field 16.4 cm); D: Isla Múcura, thickly incrusting specimen growing on dead parts of *Siderastrea siderea* in *Thalassia,* shallow patch reef, 2 m depth (horizontal field 16.4 cm). E and F. *Lissodendoryx colombiensis* new species, normal views, Islas de San Bernardo; E: Isla Tintipán, tubiform masses growing on dead parts of a column of *Montastrea annularis,* reef, 10 m depth (size of the upper tube approx. 30 cm); F: Isla Múcura, massive specimen growing on dead parts of *Montastrea annularis, Thalassia* in lagoon, 3 m depth (for size see knife 31 cm long).

6–10 pores, 19–33 μm in diameter. Sand crust compact on conules covering diameter of 0.5–1.5 mm, giving characteristic pale color, and forms 0.5–1-mm-wide ring surrounding oscules at base of collars.

CHOANOSOME. Skeleton of erect, smooth, clean, pithed, dendritic spongin fibers rising from basal plate. At base, fibres measure 90–120 μm in diameter, tapering

to 20–45 μm near end. Pith (Van Soest, 1978: 32; Bergquist, 1980: 486) occupies 57–98% of fiber diameter. Fibers 1.3–6.2 mm high, predominantly solitary but sometimes ramified near apex once or twice. They point towards conules, and frequently dense sand crust of latter covers apical and sometimes basal portion of fibers, so they may erroneously thought to be cored totally by foreign material.

Habitat.—On dead parts of corals in deeper parts of coral formations in the Santa Marta region, from 10–12 m depth to end of coral growth (20–25 m).

Distribution.—Santa Marta region, Colombian Caribbean.

Etymology.—Named after the collecting site: Punta de Betín, where INVEMAR is located.

Discussion.—Including the new species here described the genus *Chelonaplysilla* consists of four species, viz. *C. noevus* (Carter, 1876 as *Aplysina*) (with synonym *Aplysilla arenosa* Topsent, 1925), known from the eastern Atlantic, the Mediterranean, the Red Sea and Madagascar (Van Soest, 1978: 73); *C. erecta* (Row, 1911 as *Megalopastas*) (with synonym *C. erecta* Tsurnamal, 1967) from the Red Sea, the Mediterranean (Israel), and the Caribbean (Colombia, Curaçao, Puerto Rico, cf. Zea, 1983); *C. psammophila* (Topsent, 1928 as *Aplysilla*) from the North Atlantic; *C. betinensis* new species from the Colombian Caribbean.

C. betinensis new species differs from *C. noevus* and *C. erecta* in its color (greyish-green vs. purple and bluish black). *C. noevus* has thinner fibers (up to 80 μm vs. 90–120 μm in *betinensis*). *C. erecta* has longer, more ramified fibers with a tendency for anastomosis. Also the growth of *C. erecta* is generally much thicker than that of the new species.

C. betinensis new species and *C. psammophila* have similar form and fiber diameter, but differ in their color (rosy in the latter) and in the arrangement of the dermal sand crust, which is dense and continuous, with only small aquiferous openings of 0.3–1 mm scattered over the surface in *C. psammophila.*

The only other species of *Chelonaplysilla* in the Colombian Caribbean is *C. erecta,* found in the Islas de San Bernardo, Cartagena region, and the Santa Marta region (Zea, 1983). *C. betinensis* new species has only been observed in the Santa Marta region; it seems to be absent in the other zones visited during this research. In Santa Marta *C. erecta* and *C. betinensis* new species occur in different habitats. The former prefers shallow waters with metamorphic rocks or artificial substrate, while *betinensis* prefers deeper waters and dead corals in the reef formations as substrate.

Order HAPLOSCLERIDA Topsent, 1928
Family Petrosiidae Van Soest, 1980
Genus *Xestospongia* De Laubenfels, 1932

Xestospongia caycedoi new species
Figures 2C–D and 3

Holotype.—ICN-MHN(Po) 0085: dry specimen and preserved fragments; Islas de San Bernardo, Isla Ceycén, west, on dead *Acropora cervicornis,* patch reef, 4 m depth, 4-X-1982, coll.SZ.

Paratypes.—Islas de San Bernardo: INV-POR 0220, 3–4 preserved specimens, Isla Múcura, lighthouse, on sand and coral debris, shallow patch reef and *Thalassia,* 0.5–1.5 m depth, 3-X-1982, coll. SZ.—ZMA POR. 5173: fragment of the latter specimen.

CARTAGENA REGION. ICN-MHN(Po) 0164: dry specimen, Islas del Rosario, Isla Bonaire, on sand and coral debris, lagoon, 2 m depth, 17-II-1980, coll. SZ.—INV-POR 0223: 3 dry specimens and preserved fragments, Islas del Rosario, Pajarales, on sand and coral debris, lagoon sand slope, 7 m depth, 23-III-1980, coll. SZ.—MM 1114-POR 19: dry specimen, Islas del Rosario, Isla Naval (labeled

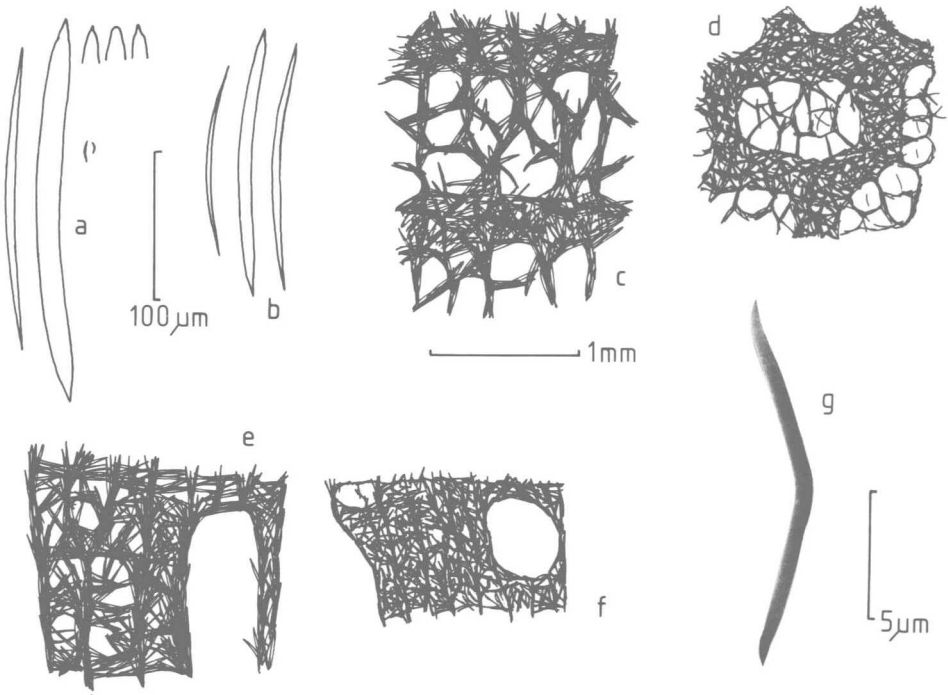

Figure 3. *Xestospongia caycedoi* new species, comparative view of the spicules (hastate and fusiform oxea, thin toxa), ectosome (tangential view of the surface) and choanosome (section perpendicular to the surface), of the material from San Bernardo and Cartagena (a, c and e) and that from Santa Marta and Providencia (b, d and f); enlarged view of tox (SEM photograph g).

locality Punta de Betín in the Santa Marta region, but on account of the spicule size, it is here referred to Islas del Rosario where MM personnel also collected), VII-1970, coll. J. Barreto.—INV-POR 0384: fragment of the latter.—USNM 32010: do.

SANTA MARTA REGION. INV-POR 0385: preserved specimen, Bahía de Chengue, beach to the right of mangrove forest, under coral boulder near shore, 1.5 m depth, 25-VI-1983, coll. SZ.—USNM 33031: fragment of the latter.—ICN.MHN(Po) 0615: preserved specimens, Bahía de Nenguange, mangrove beach, on coral debris, lagoon, 1.5 m depth, 25-VI-1983, coll.SZ.—ZMA POR. 5176: fragment of one of the latter specimens.

ISLA DE PROVIDENCIA. ICN-MHN(Po) 0166: preserved specimen, Filo Point, under *Ircinia felix, Thalassia* in lagoon, 1.5 m depth, 5-XII-1980, coll. SZ.

Type Locality.—Isla Ceycén, Islas de San Bernardo, Departamento de Bolivar, Colombian Caribbean (09°42′N, 75°52′W).

Diagnosis.—Thickly incrusting masses to robust, erect or repent branches, up to 15 cm at maximum size and 5 cm in diameter. Color vivid blue to light violet. Consistency firm, brittle. Ectosomal skeleton ill-developed, tending to consist of irregular system of short spicule tracts with many loose spicules, roofing subdermal channels. Choanosomal skeleton as ascending ill-developed multispicular tracts, interconnected by short tracts to produce vague isodictyal reticulation. Megascleres hastate oxea and fusiform oxea as developmental stages; spicules of Islas San Bernardo and Cartagena populations bigger than those from Santa Marta and Providencia (238–261 × 14.1 vs. 148–165 × 4.7–5.7 µm, range of means), causing differences in aspect of skeleton. Minute toxa (11.5–16.9 µm) present in part of material.

Description.—SHAPE. Thickly incrusting masses with or without lobes; repent to erect robust branches; lobed masses. Incrustations up to 15 cm in diameter, up to 1–2 cm in thickness; branches and masses 5–15 cm in length/height, 1.8–5 cm in diameter. Oscules 1.5–5 mm in diameter, even or on top of conical or rounded lobes. Surface smooth, punctiform, microhispid. Prismatic pattern of closely arranged channels perpendicular to surface, covered by ectosome, is visible to naked eye; channels 450 μm–2 mm in diameter; walls between them 260 μm–1.4 mm in thickness.

COLOR. Vivid blue to violet to lilac (NCG 71—Campanula, 72—Spectrum Violet, 75—Mauve, 172A—Royal Purple to 172C—Mauve). Choanosome and non-exposed parts cream to orange-yellow. Sometimes decolored (white) specimens may be found. Light drab to cream in dry condition.

CONSISTENCY. Firm, brittle; thinner specimens are fragile.

ECTOSOME. Incomplete to complete reticulation of single spicules and short spicule tracts roofing openings of subectosomal channels. Tracts with up to 8 spicules in cross section forming meshes of 130–500 μm in diameter enclosing pores of 24–38 μm. No distinct ectosome over walls between channels. Santa Marta and Providencia material with thinner tracts (65 μm in diameter against 100 μm in San Bernardo and Cartagena specimens), and with reticulation more often incomplete, due to smaller spicules.

CHOANOSOME. Densely perforated by channels up to 2 mm in diameter. Skeleton of primary ascending paucispicular lines or multispicular tracts, up to 10–15 spicules in cross section, up to 100 μm in diameter, 350 μm apart; lines or tracts short and irregular in outline. Tracts interconnected by similar tracts, occasionally by single spicules, forming meshes of irregularly rounded shape, 130–325 μm in diameter. Numerous spicules scattered in the flesh, thus causing choanosome to appear densely confused. Subectosomal tracts hispidate surface. Due to great difference in spicule sizes between material from San Bernardo and Cartagena, and from Santa Marta and Providencia, the general aspect of skeleton is very different. Tracts and meshes more defined in the first localities, while skeleton of the latter ones looks denser, almost unispicular.

SPICULATION. Hastate oxea, somewhat curved, sometimes bent in two or three sections, commonly with slightly telescopic to mammiform ends and pointed tips; fusiform oxea as developmental stage. Dimensions per locality are (range and mean):

Islas de San Bernardo:	199–<u>238.0</u>–285 × 4.7–<u>14.5</u>–19.0 μm
Cartagena region:	223–<u>261.8</u>–304 × 3.9–<u>14.5</u>–19.0 μm
Santa Marta region:	114–<u>165.3</u>–195 × 1.9–<u>5.7</u>– 9.5 μm
Isla de Providencia:	109–<u>147.7</u>–171 × 2.4–<u>4.7</u>– 7.1 μm.

The specimens from San Bernardo and one from Cartagena (ICN-MHN(Po) 0164) have thin small toxa, 11.5–16.9 μm in length, in sufficient quantities to assume they are proper. Since the remaining specimens were without them, these are very probably unstable.

Habitat.—Shallow lagoonal environments (sand bottoms, *Thalassia,* patch reefs), up to 7–10 m depth, growing on sand and coral rubble or on dead parts of corals. Very abundant in Islas de San Bernardo and Cartagena, less common in Santa Marta and Providencia, often under rocks or sponges.

Distribution.—Islas de San Bernardo, Cartagena region and Santa Marta region in the Caribbean coast of Colombia; Isla de Providencia in western Caribbean.

Etymology.—Named in the memory of Iván E. Caycedo (1951–1978), a marine biologist of INVEMAR, who was killed by a dynamite explosion, illegally but commonly used by Colombian fishermen, while SCUBA-diving doing research on holothurians and initiating the inventory of the Santa Marta sponges.

Discussion.—The great difference found in spicule size between the San Bernardo and Cartagena populations and that from Santa Marta and Providencia, which produces differences in the general aspect of the skeleton, could lead one to consider them separate congeneric species. However, the form, color, consistency and skeletal architecture is similar in all studied material. Also during the present research, many demosponge species have been found with their populations of the southern Caribbean (south of and including the Cartagena region, with Santa Marta as intermediate) invariably showing bigger spicules than those of populations from the insular Caribbean (Providencia, Antilles), sometimes as much as twice the length and thickness (Zea, 1983; in prep.). Thus, it is not incorrect to conclude that the studied material represents one species with geographic variation in spicule size.

The new species could be confused in the field with massive to incrusting specimens of *Niphates erecta* Duchassaing and Michelotti, 1864, but the surface of *X. caycedoi* new species is always smooth, the color is bluer to violet, and the skeleton is denser, while *N. erecta* has commonly a hispid to spinous surface, is light blue-grey or purple, and has thick and better defined multispicular tracts with spongin, thus making it possible to recognize it on its toughly spongy consistency.

The generic assignment of the present species is tentative, since the genus *Xestospongia* so far contained no species with microscleres. When judged on spicule complement alone, the species would probably have to be assigned to either *Toxadocia, Toxochalina,* or *Gellius* (if it is accepted that *Gellius* spp. may possess toxa instead of sigmata).

However, the type species of *Toxadocia* De Laubenfels (1936), i.e., *Gellius abbreviatus* Topsent (1918), has the spicules and the skeletal architecture of *Haliclona* (short, thick spicules in close-meshed unispicular arrangement, as could be ascertained from a slide of the type specimen kept in the Paris Museum, MNHN D.T.2057, kindly put at our disposal by Dr. N. Boury-Esnault).

Toxochalina Ridley (1884), with type species *Desmacidon folioides* Bowerbank (1874), is an unmistakable *Callyspongia,* quite unlike our new species.

Gellius Gray (1867) has fairly long, straight oxea arranged in a uni- to paucispicular reticulation not at all like in the present species. The type species of *Gelllius,* i.e., *Isodictya jugosa* Bowerbank (1866), has sigmata as microscleres, but the closely related *Gellius angulatus* (Bowerbank, 1866, as *Halichondria*) has both sigmata and toxa (for which reason it was made the type of a genus *Orina* by Gray, 1867). The genus *Rhaphisia* Topsent (1893), with type *R. laxa,* is also *Gellius*-like, but has only rhaphides as microscleres. All these forms share the same architecture and spicule form and size, which is unlike the much heavier architecture and thicker, curved spicules of the present species.

The type species of *Xestospongia, X. diprosopia* De Laubenfels (1932), however, exactly matches the present species in skeletal architecture, and until the toxa were discovered, that genus seemed to fit the present species. We have now taken the course of widening the generic definition of *Xestospongia* to include species with at least toxa. It is quite clear from the distribution of sigmata and toxa over the families and genera of Haplosclerida (and indeed even over those of the Poecilosclerida), that these spicules represent primitive characters inherited from

common ancestors. We do not think that the mere retention of ancestral microsclere types (in this case toxa) is sufficient for generic allocation. It is striking to note that several *Petrosia* or *Petrosia*-like species have been described possessing toxiform microscleres: *Petrosia incrustata* Lévi and Lévi (1983), *Toxadocia microxea* Vacelet et al. (1976), *Haliclona pellasarca* De Laubenfels (1934) (Zea, 1983), and *Toxochalina borealis* Lambe (1894) (the latter two species could be examined through the courtesy of Dr. K. Rützler, who sent the type specimens, resp. USNM 22336 and 7392, on loan).

It is here assumed that ancestors of the genera *Xestospongia* and *Petrosia* possessed toxa as microscleres, which have been progressively lost, independently in the different lines of descent.

Zea and Rützler (1983) discussed and listed six members of *Xestospongia* in the tropical western Atlantic. Of these, *Strongylophora rampa* De Laubenfels (1934), from Puerto Rico, transferred to *Xestospongia* by Van Soest (1980), was synonymized with *X. muta* by Zea (1983), based on type examination (USNM 22386). On the other hand, *Thalysias proxima* Duchassaing and Michelotti (1864), was assigned to *Xestospongia* by Van Soest et al. (1983) (cf. also Van Soest (1984) under *Neofibularia*). The result of this is that now seven species of this genus are recognized in the tropical western Atlantic: *X. caycedoi* new species, known from Colombia and Isla de Providencia; *X. muta* (Schmidt, 1870), distributed from Florida and the Bahamas throughout the Caribbean and in Brazilian waters; *X. portoricensis* Van Soest (1980), from Puerto Rico; *X. proxima* (Duch. and Mich., 1864), from Puerto Rico, the Virgin Islands, Colombia and Brazil; *X. rosariensis* Zea and Rützler (1983), from Colombia and Puerto Rico; *X. subtriangularis* (Duch., 1850) from Florida and the Bahamas, throughout the Caribbean; *X. wiedenmayeri* Van Soest (1980), from Curaçao.

Order POECILOSCLERIDA Topsent, 1928
Family Myxillidae Topsent, 1928
Genus *Lissodendoryx* Topsent, 1894

Lissodendoryx colombiensis new species
Figures 2E-F and 4

Holotype.—ICN-MHN(Po) 0103; dry specimen (now fragmented) and preserved fragments, Isla Barú, north of Playa Blanca, Cartagena region, on sand and coral rubble, *Thalassia* in lagoon, 4 m depth, 14-VI-1979, coll. SZ.

Paratypes.—ISLAS DE SAN BERNARDO. ICN-MHN(Po) 0227: preserved fragments, Isla Múcura, lighthouse, on dead parts of *Porites astreoides*, shallow patch reef, 0.5 m depth, 3-X-1982, coll. SZ.—ZMA POR.5143. Fragment of the same specimen.

CARTAGENA REGION. INV-POR 0227: dry specimen (fragmented) and preserved fragments, Isla Barú, Playa Blanca, on dead coral, patch reef of *Porites porites*, 3 m depth, 16-VI-1979, coll. SZ.—USNM 31959: dry fragments, Islas del Rosario, Isla Naval, 2–3 m depth, with *Halimeda*, VII-1970, coll. A. Pabon.—USNM 31957: dry fragments, Islas del Rosario, Pajarales, 4–22 m depth, 28-V-1968, coll. R. Kaufmann, R. Pfaff and J. Geister.—USNM 32912: San Blas Islands, Panamá, 4 m depth, attached to *Iotrochota birotulata*, 11-XII-1970, coll. P. Glynn. All USNM specimens were provisionally identified by K. Rützler as *Lissodendoryx* sp.

Type Locality.—Isla Barú, Cartagena region, Departamento de Bolivar, Colombian Caribbean (10°13'N, 75°38'W).

Diagnosis.—Thick, lobate to tubiform masses, reaching 20–30 cm in diameter/height, with one to several wide and deep pseudatria, 1.3–5 cm in diameter, containing many confluent exhalant channels. Surface corrugated, extensively perforated by rounded to elongate-contorted holes, 1–4 mm in diameter. Color orange-yellow to orange alive, light drab when dried and in spirit. Consistency

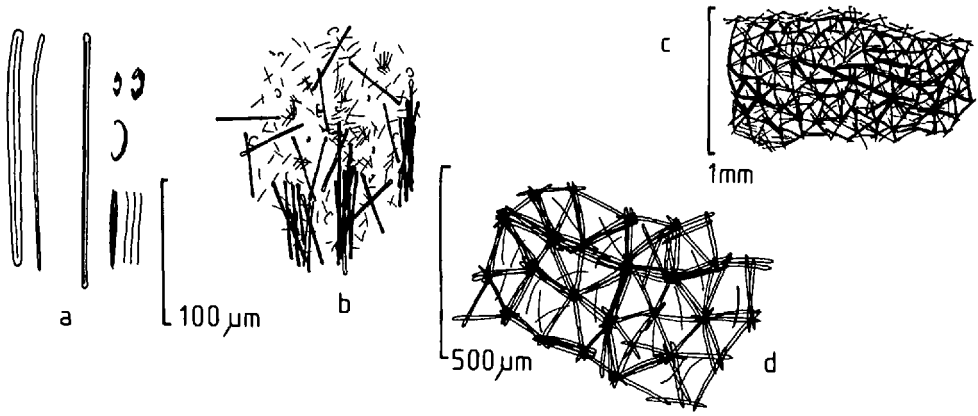

Figure 4. *Lissodendoryx colombiensis* new species, a: spicules (choanosomal strongyles, ectosomal tylotes, arcuate isochelae in two categories, sigmata, and rhaphides in trichodragmata), b: ectosome, tangential view of the surface, c: choanosome, section perpendicular to the surface, d: choanosome enlarged.

toughly compressible but easily crumbled. Ectosome as dermis with dispersed tangential tylotes, single or in bundles, and microscleres. Choanosome with regular subisodictyal reticulation of strongyles forming triangular meshes. Spiculation of straight ectosomal tylotes 179 × 4 µm; thick flexuous choanosomal strongyles (and thin strongylostyles as developmental stages) 168 × 6 µm; arcuate isochelae in presumably two size categories (with some overlapping sizes), large ones 26.1 µm, small ones 18.6 µm; thin sigmata 28.1 µm; rhaphides in trichodragmata 52–71 µm.

Description.—Shape. Thick, lobate to tubiform masses, up to 20–30 cm in diameter, 10–20 cm in height, with apical pseudoscules 1.3–3.5 cm in diameter or more, with transparent, slightly elevated collars. Sometimes pseudoscule directed downwards. Deep pseudatria with numerous wide exhalant channels (up to 1 cm in diameter) converging into bottom and sides. Surface corrugated with smooth, somewhat plastic-like dermis. Alive, external surface extensively perforated, having numerous rounded or elongate-contorted holes, 1–4 mm in diameter, penetrating and ramifying deeply into choanosome. Non-perforated areas have same type of holes but these roofed over by dermis. When dry, dermis disappears and surface appears completely perforated in honeycomb pattern with walls 1–4 mm thick separating holes of up to 4 mm in diameter.

COLOR. Orange-yellow to orange (NCG 18—Orange Yellow, 17—Spectrum Yellow, 16—Chrome Orange) alive, light drab in spirit and when dried.

CONSISTENCY. Toughly compressible, but easily crumbled alive, harder but friable when dried. Big specimens tend to collapse in dry conditions.

ECTOSOME. Dermis covering holes and pseudatria with dispersed tangential tylotes, trichodragmata in groups, and many isochelae. Dermis covering choanosomal tissue with dense cover of tangential tylotes, frequently arranged in tracts or bundles up to 30 spicules (150 µm) in diameter.

CHOANOSOME. Extremely cavernous, with channels from 260 µm to 1 cm in diameter (the latter near the pseudatria). Skeleton a regular subisodictyal reticulation of 1–4 strongyles on each side, joined at ends by spongin, forming triangular meshes. Tracts of 7–8 spicules in cross section (50 µm in diameter) common. Developmental stages of strongyles (strongylostyles) dispersed in flesh, as are many microscleres. Ectosomal tylotes prominent near surface.

SPICULES. Straight ectosomal tylotes with only slightly developed tyles: 161–178.9–204 × 1–4.1–5.2 μm, curved to flexuous, thick choanosomal strongyles, with developmental strongylostyles: 133–168.0–190 × 1.4–6.3–9.0 μm; arcuate isochelae of widely ranging lengths, which may be separated in two length categories: large ones 23–26.1–32 μm, small ones 15–18.6–22 μm; thin sigmata: 23–28.1–36 × up to 1.2 μm; rhaphides in trichodragmata: 52–71 μm.

Habitat.—Patch reef and lagoonal environments in waters with less than 6 m depth. Extremely common in Islas de San Bernardo and less common in Islas del Rosario near Cartagena; absent in Santa Marta region and Isla de Providencia. It is a very conspicuous sponge, when compared to other sponge species in the same environment. It grows in sand and coral rubble, on dead lateral parts of massive corals, and between branches of ramose and foliose corals.

Distribution.—Islas de San Bernardo and Cartagena region, Colombian Caribbean; San Blas Islands, Panamanian Caribbean.

Discussion.—After the Van Soest (1984) West Indian Poecilosclerid revision, four species of *Lissodendoryx* are considered valid: *L. isodictyalis* (Carter, 1882) from New England, Bermuda, Bahamas, Florida, throughout the Caribbean, and in Brazilian waters; *L. sigmata* (De Laubenfels, 1949) known from the western Bahamas, Puerto Rico and Curaçao; *L. strongylata* Van Soest (1984) from Curaçao; and an undescribed species from Belize (material housed in the British Museum (Natural History), Van Soest, 1984). With the present description a fifth species is added to the list.

L. colombiensis new species is similar to *L. strongylata* in having the same type of surface and strongyles as megascleres. They differ by the presence in the former of deep pseudatria, the possession of thick flexuous strongyles (against straight and thin ones in the latter), and trichodragmata (which are absent in *L. strongylata*); life color and consistency are also conspicuously different.

L. isodictyalis is the only other species of the genus known to date from the Colombian Caribbean (Wintermann-Kilian and Kilian, in press; Zea, in prep.).

It is likely that the specimen pictured in George and George (1979) on Pl. 5 fig. 1 (as *Agelas clathrodes*) belongs to our new species.

The possession of rhaphides in species of *Lissodendoryx* adds another item to the list of characters shared between the family Myxillidae and the genus *Coelosphaera* of the family Coelosphaeridae (Van Soest, 1984). This is a further argument for abandoning the family Coelosphaeridae, which has been recently reduced to very small proportions by the erection of the new family Cornulidae Lévi and Lévi (1983) for the former Coelosphaerid genera *Cornulum, Paracornulum* and *Amphiastrella* (next to two new genera and some non-coelosphaerid genera).

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